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LAW OFFICES  
GOLDBERG, GODLES, WIENER & WRIGHT  
1229 NINETEENTH STREET, N.W.  
WASHINGTON, D.C. 20036

HENRY GOLDBERG  
JOSEPH A. GODLES  
JONATHAN WIENER  
HENRIETTA WRIGHT  
W. KENNETH FERREE  
SHERYL J. LINCOLN  
THOMAS G. GHERARDI, P.C.  
MARY J. DENT  
COUNSEL

(202) 429-4900  
TELECOPIER:  
(202) 429-4912

RECEIVED

e-mail:  
general@g2w2.com

JUL 21 1999

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

July 21, 1999

EX PARTE

Magalie R. Salas, Secretary  
Federal Communications Commission  
The Portals Building  
445 12th Street, SW  
TW-A325  
Washington, D.C. 20554

EX PARTE OR LATE FILED

Re: WT Docket No. 98-100

Dear Ms. Salas:

On July 20, 1999, Raidza Wick and Eric Schweikert of America One Communications, Inc. and Henry Goldberg, met with Thomas Sugrue, Diane Cornell, Jane Phillips and other staff members of the Wireless Telecommunications Bureau regarding the attached study by Professor John Mayo (Georgetown University School of Business). The study demonstrates how resale contributes to lower costs for consumers, limits price discrimination, and promotes competition.

Sincerely,



Henry Goldberg  
Attorney for  
America One Communications, Inc.

Attachment

cc: Thomas Sugrue  
Diane Cornell  
Jane Phillips

No. of Copies rec'd 0+1  
List A B C D E

**RESALE AND THE GROWTH OF COMPETITION  
IN WIRELESS TELEPHONY\***

by

**Mark L. Burton**  
**Marshall University**

**David L. Kaserman**  
**Auburn University**

**John W. Mayo**  
**Georgetown University**

**July 1999**

**\*Paper to be presented at the Rutgers University, Center for Research in Regulated Industries, Advanced Research Seminar, October 1999. The authors gratefully acknowledge the helpful comments of Andy Cohen, Raidza Wick, David Tyler and Eric Schweikert. The financial support of America One is also appreciated. The views expressed herein are solely those of the authors who are responsible for any remaining errors.**

## Executive Summary of Findings

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The closing decades of the 20<sup>th</sup> century have seen remarkable changes in the structure of the telecommunications industry, the nature of communications service offerings, and the breadth of the issues faced by telecommunications policymakers and regulators. It is, indeed, both an exciting and challenging time. Among the myriad changes that are occurring, none is more pronounced than the growth in wireless communications. In recent years, the number of wireless subscribers has grown by more than 10 million customers each year. A vast array of advanced digital wireless services is rapidly making its way to consumers and scores of new providers are busy developing additional wireless network capacity. Wireless communications, once a novel complement to wireline telephony, now would seem to hold the potential to eventually become a viable substitute for traditional wireline telephone service.

In wireless, as in other areas of the telecommunications industry, the Federal Communications Commission (FCC) has historically protected the rights of subscribers to resell purchased telecommunications capacity. These protections for an “open resale” policy have been in place for long-distance since the late 1970s and were Congressionally mandated for wireline local exchange within the 1996 Telecommunications Act. The FCC, however, has opted to sunset resale protection in wireless markets. This departure from the historical policy course would seem to ignore a number of important factors, including (1) relevant economic theory, (2) lessons from the benefits achieved through the longstanding policy of open resale in long-distance, and (3) the currently observable and significant role of resale in wireless markets. Specifically, as economic theory predicts, wireless resale:

- Results in service offerings that are not typically provided by facilities-based carriers. Resellers reach segments of wireless markets that would be unserved or, at least, underserved in their absence.

- Provides an important competitive force that inhibits facilities-based providers' ability to price discriminate and fosters lower-cost production by enabling specialization of productive activities.
- Facilitates competitive entry by providing emerging facilities-based carriers a means of acquiring a customer base even as they are in the process of building-out their own wireless networks.

Where facilities-based incumbent providers feel threatened by the emergence of resale competitors, resale markets are likely to be foreclosed in the absence of a mandatory open resale policy. In these cases, the resale activities which currently discipline facilities-based pricing and promote competitive entry will disappear with the sunseting of wireless resale protections. The likelihood of this outcome is only underscored by the ferocity with which facilities-based wireless providers have attacked the existing resale protections.

Ultimately, the desirability of retaining or abandoning wireless resale protections rests on the issue of whether the clearly demonstrable benefits of wireless resale are somehow outweighed by the costs that resale imposes on facilities-based providers. With regard to this issue, the FCC has concluded that prudent business practices combined with the structure of current resale protections negate most potential costs. Indeed, it would seem that the principal resale-related cost faced by facilities-based providers is the cost these providers are incurring in their attempt to eliminate the resale protections. In this light, we conclude that economic efficiency and the interest of consumers would be best served by a preservation of the long-standing policy that maintains open resale markets.

## 1. Introduction and Overview

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The closing decade of the 20<sup>th</sup> century has been marked by profound technological changes. Among these, it is difficult to imagine one more quickly embraced by the marketplace than wireless telecommunications. What was, a decade ago, merely a novelty or an indulgence is now a central component of personal and professional communications. Although barely in its adolescence, wireless telephony has already left an indelible mark on both American society and commerce. To accurately predict the magnitude of the wireless contribution to future economic welfare is impossible, yet the growth of this contribution is virtually indisputable. Wireless services that are today barely imaginable are likely to pervade the telecommunications marketplace of the future. Moreover, the costs of providing the wireless services which millions of customers currently enjoy are likely to be driven ever lower by technological advance and emerging competition. Wireless services that are now pervasive may, in the foreseeable future, be *universal*.

Amid such promise, it is perhaps easy to forget that wireless technologies and the markets in which wireless services are bought and sold are, as yet, nascent and unpredictable. Effective competition in these markets, likely as it may someday be, is not yet a pervasive reality. Cellular services, the most mature wireless offering, continue to dominate non-wireline markets and the degree of competition between cellular providers is, at best, suspect.<sup>1</sup> Personal Communications Services (PCS) providers are poised to challenge cellular firms, but the competitive influence PCS is expected to provide is only now emerging. The evolution of PCS and the opening of additional spectrum may well transform highly profitable duopoly cellular markets into highly competitive markets in which no seller's prosperity is assured, but this transformation is far from complete and the speed with which it will come to fruition is very much uncertain.

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<sup>1</sup> See Philip M. Parker and Lars-Hendrik-Roller "Collusive Conduct in Duopolies: Multimarket Contact and Cross-Ownership in the Mobile Telephone Industry," *RAND Journal of Economics*, Vol. 28 (Summer 1997), pp. 304-322.

Against this backdrop of an emerging market, telecommunications policy takes on a terribly important role. Policy actions designed to promote and accelerate the advent of competition are likely to immeasurably aid the development of this market and the resulting welfare that consumers receive from wireless telephony. On the other hand, policy measures that either directly or indirectly impede pro-competitive actions in this market are likely to have profound negative consequences. Exemplary of the positive developments that are being taken to accelerate the advent of competition, the Federal Communications Commission (FCC) has moved to widen the base of facilities-based wireless providers by opening the market to entry by PCS providers.

Another step recently taken by the FCC is worthy of economic and policy scrutiny. Specifically, while the FCC has a long tradition of promoting competition by maintaining opportunities for retail-stage firms to provide services through resale of services sold by facilities-based providers, the Commission has recently signaled a modification of this policy path by indicating that it will sunset the regulatory assurance of resale opportunities in the wireless arena. In this paper, we evaluate the merits of the traditional “open resale” public policy which has been designed to ensure the *opportunity* for resale competitors to enter the market.<sup>2</sup> Given the recent focus of the FCC on wireless telephony in its decision to sunset the long-standing regulatory assurance of opportunities for resale, we focus our attention on the role that resale may play in promoting competition and efficiency in this important emerging market. To do so, we employ a combination of relevant economic principles and available empirical information.

We find that on theoretical grounds resale is universally a pro-competitive, efficiency-enhancing characteristic of markets. The opportunity for resale permits the possibility of the development of a more efficient industrial structure than would be possible otherwise. Additionally, resale serves to mitigate the harmful consequences of price discrimination by upstream, facilities-based providers. The result of the more efficient industrial structure and the

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<sup>2</sup> We emphasize the term *opportunity* to stress an important distinction. Policies designed to *guarantee* the survival of any competitor or set of competitors are virtually certain to prove harmful to competition. In contrast, policies designed to assure firms the *opportunity* to compete on their efficiency merits are likely to prove distinctly pro-competitive.

propensity of resellers to seek profit opportunities brought about by price discriminating upstream firms results in resellers providing service to retail stage customers that are either underserved or unserved.<sup>3</sup> We also find that resale plays a critical role in the development and vibrancy of competitive markets by facilitating both entry and expansion at the retail-stage and into upstream (facilities-based) markets.

Our empirical examination of resale in telecommunications finds that policies designed to ensure the opportunity for resale have proven markedly successful in enhancing the causes of economic efficiency and competition. Specifically, we find that significant lessons for wireless telecommunications resale policy emerge from an examination of the development of resale in the long-distance market over the past 15 years. Resale in this “cousin” market to wireless has proven to be an important catalyst for entry, growth of new firms, downward cost pressure, new service innovations, and the transition to full-facilities-based entry. Moreover, while resale is sometimes thought of as a transition-phenomenon as a market evolves from regulated monopoly to competition, we find that resale in the long distance market continues today to be an important pro-competitive influence some fifteen years after the divestiture of AT&T.

The track record of resale in the provision of wireless telecommunications is considerably shorter than in the wireline long-distance market. Nevertheless, our examination of wireless resale indicates that it is playing essentially the same pro-competitive role that resale has played in traditional wireline markets for fifteen years. Given the importance of the development of the wireless industry and the important pro-competitive role of resale in that market, we conclude that policymakers should steadfastly maintain policies designed to ensure the opportunity for resale providers to enter wireless telecommunications markets and to compete on their efficiency merits.

The organization of the paper is as follows: Section 2 explores the potential competitive contribution of wireless services within the greater context of *all* local and interexchange telecommunications. The economic principles of resale are laid out in Section 3. We find that as

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<sup>3</sup> More often than not, facilities-based providers resist resale because of its ability to discipline facilities-based pricing practices. This outcome is discussed further in Section 4.

a general proposition resale serves a dual and distinctively positive role of promoting economic efficiency and competition. Section 4 examines how these economic principles have been made manifest in telecommunications markets. Specifically, given the long lineage of resale in the wireline market for long-distance telecommunications services, we examine the empirical evidence that has accumulated regarding the role of resale in the development and maintenance of competition in the long-distance market. We find that resale has resulted in downward price pressure, enhanced innovation and expanded consumer choice. We also examine the role of resale in the emerging wireless market. Again, we find that resale has played a distinctively positive role in advancing the cause of competition. Finally, Section 5 contains economic conclusions and summary remarks.



## 2. The Origins and Future Economic Contributions of Wireless Telephony

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The whole of the telecommunications landscape has changed immeasurably over the past 15 years. In 1984, AT&T was compelled to divest itself of local exchange operations and long-distance markets were successfully opened to competitive entry. More recently, the 1996 Telecommunications Act has brought further change, as legislators and policymakers seek to emulate the interexchange experience and bring effective competition to other communications markets. In the midst of this metamorphosis, the potential – indeed probable contribution – of wireless telephony has changed considerably. In 1984, the year of AT&T's divestiture, there were 32 firms providing wireless services to an estimated 91,000 customers. In total, these firms employed roughly 1,400 individuals. As of June, 1998, the most recent period for which estimates are available, more than 2,300 wireless sellers, with more than 113,000 employees, were providing wireless communications to an estimated 61 million customers.<sup>4</sup>

Not only is wireless telephony growing rapidly, but the nature of its competitive role within the broader telecommunications environment appears to be changing as well. Historically, the demand for wireless communication has stemmed from a desire for mobility. Thus, wireless and wireline services have traditionally been viewed as complementary services. Increasingly, however, as the service quality of wireless continues to improve, wireless telephony is being touted as a potential *substitute* for traditional wireline service. This transition, if fully realized, may significantly increase the economic importance of the wireless industry.

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<sup>4</sup> See *Trends in Telephone Service*, Industry Analysis Division, Common Carrier Bureau, Federal Communications Commission, February, 1999, Tables 2.1 and 2.2.

The balance of this section seeks to accomplish three things. First, we retrace the modern commercial development of wireless telephony in to provide an institutional and policy context. Second, we examine the future economic contributions of wireless in its traditional role as a facilitator of mobility. Finally, we consider the potential competitive roles that wireless may play if it emerges as a viable substitute for wireline communications.

## 2.1 A Brief History of Wireless Telephony in the U.S.

A retrospective glance at the evolution of wireless telecommunications suggests that the current structure of competition in wireless markets owes as much to the quirky interaction of disparate forces as to any cohesive, forward-looking public policy. Specifically, the current structure of the wireless industry is the result of the timing of technological advances, including frequency modulation, cellular technology, and the development of PCS; as well as to evolving attitudes toward AT&T and its 1984 divestiture of the (then seven) Regional Bell Operating Companies (RBOCs).

Mobile communications based on frequency modulation (FM) signals is largely an outgrowth of the military's World War II communications needs. In 1946, AT&T's Bell Labs linked mobile FM communications with traditional wireline telephony through its development of "Improved Mobile Telephone Service" (IMTS).<sup>5</sup> In 1949, the FCC grudgingly responded to AT&T's 1947 request for necessary frequencies by allocating a small amount of spectrum for mobile communications. Interestingly, half of this space was allocated to AT&T's subsidiaries, while half was reserved for non-wireline providers. Accordingly, as John Berresford notes in his historical account, the "Radio Common Carriers" (RCCs) that emerged under the FCC order were the first FCC-created competitors to Bell System providers.<sup>6</sup>

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<sup>5</sup> See AT&T's history of its wireless services at [http://www.attws.com/general/about\\_us/us\\_fct05.html](http://www.attws.com/general/about_us/us_fct05.html).

<sup>6</sup> See John, W. Berresford, "The Impact of Law and Regulation on Technology: The Case History of Cellular Radio," *Business Lawyer*, May 1989, American Bar Association.

The system of FM mobile communications as provided for by the FCC in 1949 was extremely limited in its capacity, so that neither the Bell System nor the independent RCCs could serve more than a few hundred customers in any single region.<sup>7</sup> In 1962, however, Bell Labs began working on a system that would allow for simultaneous multiple uses of each assigned frequency within a single service area – cellular. In 1968, the FCC expressed interest in the new technology and, in 1970, allocated additional spectrum for the development of new mobile services.<sup>8</sup>

Over the next ten years, AT&T and Bell Labs effectively demonstrated the viability of cellular communications. During the same timeframe, as the FCC took up the issue of who would be allowed to sell cellular services, AT&T lobbied for the presence of a single Bell System seller in each service area.<sup>9</sup> The FCC rejected this approach, however, and announced in 1981 that it would license as many as two sellers in each cellular market – one wireline provider (the B block) and one non-wireline seller (the A block).<sup>10</sup> It appears this decision resulted from two simultaneous, but largely contradictory arguments. The RCCs contended that wireline sellers of cellular services would almost certainly eliminate them if they were not also allowed to provide cellular communications. Alternatively, the U.S. Department of Justice argued that wireline sellers would be likely to withhold cellular services in order to protect local exchange operations unless entry by a non-wireline seller was possible.<sup>11</sup>

AT&T's divestiture of its local operations and, particularly, the creation of seven RBOCs has had a profound impact on the structure of competition in wireless markets. Once separated from AT&T, each RBOC found it possible to compete out-of-region with other RBOCs as the non-wireline provider of wireless services. By 1989, RBOCs providing out-of-region wireless

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<sup>7</sup> *Ibid.*

<sup>8</sup> *Ibid.*

<sup>9</sup> *Supra* Note 4.

<sup>10</sup> 86 FCC 2d at 474-82.

<sup>11</sup> *Supra* Note 5.

service held more than 30% of non-wireline licenses.<sup>12</sup> The recent wave of RBOC mergers and merger proposals will certainly bring about further changes in the ownership structure, with perhaps even greater similarity of multimarket contact among the Bell operating companies.

In 1988, even as analog cellular was emerging, telecommunications industry groups began working to develop a wireless technology that would yield both improved service quality and greater system capacity.<sup>13</sup> Ultimately, these efforts resulted in the introduction of digital cellular services and PCS. Both forms of digital wireless service provide greater capacity for a given cell size. Both are capable of accommodating data transmissions and both digital cellular and PCS afford users greater protection from fraudulent use and increased assurances of privacy.<sup>14</sup>

In 1986, the FCC increased the spectrum allocation for cellular providers from 40 to 50 MHz. Additional spectrum was later made available for PCS and was auctioned to both narrowband and broadband PCS providers between July, 1994 and January, 1997. The cellular spectrum allocation still accommodates only two providers though many cellular operators provide dual-mode service.<sup>15</sup> The PCS spectrum allocation, if fully utilized, can accommodate up to five PCS providers in any one market. However, in many PCS markets, licenses remain unsold. Moreover, many PCS license holders have yet to actually initiate service, so that the number of PCS providers in most markets is well below the five carrier maximum.

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<sup>12</sup> *Supra* Note 5.

<sup>13</sup> See Lawrence Harte, Steve Prokup, and Richard Levine, *Cellular and PCS: The Big Picture*, McGraw Hill, 1997, p. 62.

<sup>14</sup> *Ibid.*

<sup>15</sup> *Supra* Note 3, p. 63. Regardless of whether or not particular providers offer digital cellular services, the FCC requires all cellular systems to support traditional analog services. Systems and equipment capable of providing both digital and analog operations are referred to as "dual mode."

## 2.2 Meeting An Unmet Demand for Mobility

Table 2.1 summarizes estimates of wireless usage and per minute-of-use (MOU) revenues. Based on this information, it is clear that the dramatic growth in wireless usage has not come in response to corresponding declines in wireless pricing. Thus, there has been and continues to be a tremendous growth in the demand for mobile communications that has allowed both incumbent and entering firms to sell increasingly large volumes of wireless services at what appear to be relatively constant prices. This demand growth is likely attributable to three root causes – (1) improved service quality; (2) increased consumer experience and information; and (3) the effects of network externalities.

Demand Growth – the Role of Service Quality Improvements. Service quality improvements are traceable to a number of technological advances and to the dramatic extension of coverage areas. The quality of voice transmissions has improved continuously over the past 15 years.

**Table 2.1**

<i>Year</i>	<i>U.S. Wireless Subscribers (x 1million)</i>	<i>Number of Wireless Providers</i>	<i>Estimated Minutes of Use (x 1 million)</i>	<i>Estimated Annual Revenue (x 1 million)</i>	<i>Nominal Average Revenue per Minute of Use</i>
1991	6.4	1,252	16,094	5,760	0.436
1992	8.9	1,506	19,460	7,369	0.472
1993	13.1	1,529	23,053	10,532	0.548
1994	19.3	1,581	31,857	13,664	0.542
1995	28.2	1,627	42,976	17,579	0.489
1996	38.2	1,740	53,907	22,462	0.480
1997	48.7	2,228	68,366	25,714	0.423

Source: Data describing the number of subscribers, minutes of use, and revenues appeared in, "How to Stay Ahead in the U.S. Wireless Industry, Part 1 of 2." Global Telecoms Business, 1998, pp. 50-54. The authors indicate the original source as McKinsey & Company. Data describing the number of wireless providers were drawn from the Federal Communications Commission. See Note 4.

Moreover, the application of digital technologies, whether through cellular or PCS, now makes it possible to rapidly transmit data over wireless networks.

Demand Growth – the Contribution of Increased Spatial Coverage. While transmission quality has been a contributor to the growth of demand for wireless services, it has been only of secondary importance relative to the expansion of service coverage areas. Early cellular systems provided wireless capabilities within relatively limited geographic areas. Thus, wireless was only attractive to those potential customers whose communications needs were geographically limited. As wireless usage has grown, however, so has the spatial coverage of wireless systems. Consequently, today, wireless users are able to utilize mobile telephone services from virtually any location in the United States. The result is clear – more users now demand wireless communications because expanded geographic coverage has made wireless more useful.

It is important to also realize that consumer demand is invariably impacted by the availability of reliable information. In the case of a new product, reliable information may be difficult or expensive to acquire. As a market for a good or service grows, however, basic information about both the usefulness and reliability of that good or service becomes more plentiful and less expensive. In this light, the accelerating growth in the demand for wireless communication has almost certainly been driven in part by the growing ability of potential customers to observe the positive experiences of actual wireless consumers.

Demand Growth – the Effect of Network Externalities. Finally, the increase in demand for wireless telecommunications is likely attributable to what is often referred to as a network externality. Any communication network becomes more useful to its subscribers as the number of subscribers (and/or interconnectivity with other networks) increases.<sup>16</sup> Mobile communications are no different. For a busy professional, the ability to communicate with a colleague from a car or airplane is valuable. The value of this mobility is, however, greatly enhanced when the colleague can be reached regardless of whether she is in her office or on the 14<sup>th</sup> tee.

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<sup>16</sup> It is, in fact, the well-recognized network externalities associated with local exchange service that have motivated universal service programs.

Demand Growth – Future Potential. Of the several sources of demand growth in mobile telephony, the only one that is likely to subside in the foreseeable future is the effect of increased spatial coverage. Given that the U.S. is virtually blanketed by cellular access, the ability of spatial growth to add to wireless demand would seem close to an end. The remaining sources of demand growth should, however, continue to contribute to an expansion of wireless usage for many years to come. Current wireless penetration is only at roughly 20 percent.<sup>17</sup> Thus, the positive network externalities described above will continue to compound. Experienced wireless users are also finding more uses for wireless communications – applications that often result in the substitution of wireless telephony for both other wireless communications and traditional wireline service. This source of continued demand growth is virtually assured as consumers more fully explore nascent digital technologies. Very clearly, policymakers and wireless providers alike must prepare to serve an end-user market that will continue to expand rapidly over the foreseeable future.

### 2.3 An Expanding Role: Future Competitive Contributions of Wireless

Some industry observers have argued that wireless telephony is a direct and competitive substitute for wireline telephony today. While specific instances of such substitutability are no doubt possible to identify, the aggregate relationship of wireless telecommunications to wireline telephony is today most certainly complementary rather than substitutable. That is, the growth of wireless communications has actually increased the demand for wireline services. Certainly, economists have yet to identify and empirically quantify any disciplinary role that wireless telephony has played on the market power of incumbent local exchange carriers (LECs). There is, however, every reason to expect that emerging wireless networks will make an increasingly important contribution to overall competition in telecommunications markets – particularly if wireless markets are, themselves, subject to effective competition.

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<sup>17</sup> See, Scott Arnold, Paul Roche, Mark Knich Rehm, and Byron Auguste, “How to Stay Ahead in the US Wireless Industry: Part 1 of 2,” *Global Telecoms Business*, 1998, pp. 50-54.

The Competitive Role of Wireless – Substituting for Local Exchange Service. There are, in fact, at least two potentially important competitive roles for wireless, both of which relate to the substitutability of wireless for traditional local wireline service. First, as many have observed, wireless telephony has the potential to serve as a powerful competitor for LECs. The importance of this potential is only amplified by the success the LECs have had in forestalling wireline entry into local markets.<sup>18</sup> Certainly, to the extent that wireless networks can evolve to provide an effective alternative to the LEC service, traditional local providers' pricing behavior may be constrained.

The Competitive Role of Wireless – Interexchange Competition. The second potential competitive role of wireless telephony has to do with the vertical structure of the provision of wireline long distance services. Specifically, as currently structured, LECs retain virtual monopoly control over the local exchange access facilities that are necessary in order to provide wireline long distance telephony. Currently, interexchange carriers (IXCs) pay access charges to local carriers for originating and terminating long-distance calls. While the magnitude of these access charges continues to be a contentious topic, these charges do not currently bias the nature of competition between the various long-distance providers because all IXCs pay the same rates for local access.

In the future, however, as LECs re-enter in-region long-distance service, the neutrality of local access charges will no longer be assured. Specifically, if access charges exceed the economically efficient costs of providing access to local customers, the LECs will have a powerful means of thwarting long-distance competition. Under such a scenario, the competitive gains achieved in long-distance markets could be severely threatened unless interexchange carriers develop some alternative to the local access monopoly bottleneck. Wireless telephony may well be that alternative. The potential economic incentives to develop the wireless market in this direction have begun to be pursued by, among others, AT&T.<sup>19</sup>

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<sup>18</sup> See, e.g., Stephanie N. Mehta "Locked Out" *Wall Street Journal*, September 21, 1998, p. R8.

<sup>19</sup> Within the context of the current investigation it is important to note that AT&T is purchasing wireless access from other providers and reselling these wireless services. See *Telephony*, May 5, 1998, Vol. 234, No. 18, p. 7.



The *potential* competitive contributions of wireless telephony are tremendous. Whether or not these contributions become manifest, however, will largely depend on whether policy measures are embraced to assure the competitive development and maintenance of wireless markets. Absent robust competition, it is unlikely that cellular or PCS prices will ever be sufficiently low to allow wireless telecommunications to serve as an effective substitute for local exchange service and absent this substitutability, the competitive promise of wireless may be lost.

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### 3. The Economics of Resale

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Resale of a product--that is, purchase of a product from an upstream supplier and subsequent sale of that product to final consumers--is a common phenomenon in manufacturing and distribution systems throughout the U.S. economy. Many products from relatively complex items such as refrigerators, automobiles, and computers, to simpler goods, such as books, groceries, and blue jeans are sold by separate firms at the final, retail stage of production without physically altering the product(s) acquired from their upstream suppliers. That is not to say that resellers do not add value to the product through various retail-stage activities such as marketing, servicing, providing product-specific information, and so on. In this sense, resale is economically equivalent to any other manufacturing process in which firms combine inputs to produce a good or service.<sup>20</sup> Firms that *specialize* in resale are, in fact, a necessary component of the production/distribution chain whenever upstream producers choose not to vertically integrate forward (or choose to only partially integrate forward) into the final retail stage. That is, resale exists due to incomplete forward integration by upstream firms. It is really nothing more than a separation of ownership between the wholesale and retail stages of production.

As a result, to understand the economic rationale for and commercial functions served by resale, it is useful first to consider the economic theory of vertical integration—*viz.*, why firms choose to extend ownership across what would otherwise be an intermediate product market, thereby replacing a market exchange with an internal (within the firm) transfer.<sup>21</sup> A considerable body of literature exists pertaining to that theory.<sup>22</sup> That literature, in turn, suggests several

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<sup>20</sup> Unlike the most simple case of retailing, resale often involves various added dimensions to the retail stage including, for instance, branding of the service.

<sup>21</sup> Any theory capable of explaining why firms vertically integrate is also likely to provide insight as to why firms choose not to integrate.

<sup>22</sup> A survey of this literature may be found in Martin K. Perry, "Vertical Integration: Determinants and Effects," Chapter 4 in Handbook of Industrial Organization, Vol. 1, Richard Schmalensee and Robert D. Willig, editors, North-Holland Publishers, Amsterdam, 1989.

important roles that resellers are likely to serve in determining the overall economic performance of a given industry. Here, we identify and explain three of these roles.

We find that, in every case, resale serves either to: (1) move the market outcome closer to that which would be observed in a competitive equilibrium; or (2) increase the efficiency (i.e., lower the costs) of the overall vertical chain of production. In no case does resale harm either competition or productive efficiency.

Role 1 — Resale Permits Improved Realization of Divergent Scale Economies Between the Wholesale and Retail Stages. One of the earliest theories of vertical integration/disintegration was that provided by George Stigler.<sup>23</sup> Stigler explained how total industry costs are minimized by separation of ownership between two vertical stages of production that exhibit markedly different scale economies.<sup>24</sup> Figure 3.1 illustrates the basic, and rather straightforward, logic of Stigler's argument.

In this figure, we assume two vertical stages of production with long-run average cost of  $LAC_U$  for the upstream stage and  $LAC_D$  for the downstream stage. Further we assume that these two stages of production display divergent economies of scale, with  $LAC_D$  reaching its minimum point at an output of  $Q^*_D$ , and  $LAC_U$  reaching its minimum point at an output of  $Q^*_U (=2 Q^*_D)$ . For simplicity, we have also assumed that these two functions have the same values (\$0.20) at their respective minimums. Finally, we assume that downstream production is characterized by a fixed input/output ratio equal to one. That is, each unit of output at the downstream stage requires exactly one unit of output from the upstream stage. In the absence of any transaction cost savings or other vertical economies (or diseconomies), vertical integration between these two stages (i.e., having a single integrated firm perform both the upstream and downstream production activities) would yield total long-run average costs of  $LAC_I$ , which is simply the

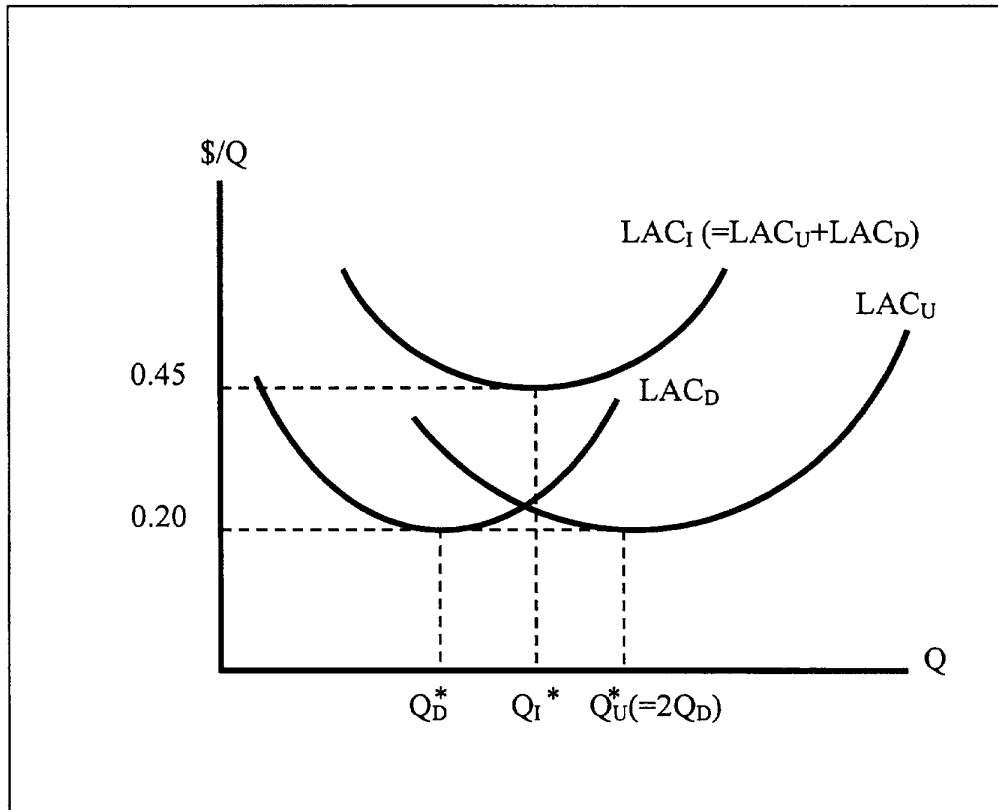
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<sup>23</sup>George J. Stigler, "The Division of Labor is Limited by the Extent of the Market," Journal of Political Economy, Vol. 59 (June 1951), pp.185-193.

<sup>24</sup>Such divergent scale economies may stem from any of a variety of sources. For example, capital intensity or the geographic scope of the production activities may differ markedly between the two vertical stages. Automobile manufacturing versus automobile retailing for instance, clearly displays this sort of divergence between scale economies at the two vertical stages. Moreover, where multiple downstream markets exist, there is no reason to believe they will all exhibit identical scale economies.

**Figure 3.1**

## RESALE AND DIVERGENT SCALE ECONOMIES



vertical sum of the average costs that exist at the two separate stages of production (i.e.,  $LAC_I = LAC_U + LAC_D$ ).

Two features of this vertically integrated long-run average cost function stand out. First, this function reaches its minimum point somewhere between  $Q_D^*$  and  $Q_U^*$ . That is, the economies of scale exhibited by the vertically integrated firm will be a “blend” of the economies of scale of the two separate stages of production. Second, and more importantly, the minimum point of the vertically integrated firm’s average cost function will exceed the sum of the minimum points of the two vertically separated stages of production. Specifically, in the case

depicted here,  $LAC_I = \$0.45$  at its minimum point, while  $LAC_U + LAC_D = \$0.40$  at their respective minimums.

Given this result, it is apparent that overall industry costs are minimized under a vertically non-integrated market structure. In this example, a single non-vertically-integrated upstream producer supplying two separate downstream producers can profitably sell  $Q^*_U$  units at an intermediate product price of \$0.20 per unit. These downstream firms can then supply the final product to consumers at a retail price of \$0.40 per unit. A vertically integrated producer, however, would require a final product price of \$0.45 per unit to remain viable.

Thus, in the presence of divergent scale economies, vertical separation of the upstream and downstream stages (which requires separately owned retail-stage firms, i.e., resellers) reduces overall industry costs, thereby allowing lower prices to be charged to final consumers. In this situation, then, separately owned resale firms clearly promote economic efficiency. Also, because more of the product will be consumed at the lower price, in the absence of other considerations (e.g., maintenance of monopoly power at the upstream stage), both upstream and downstream firms will favor the more efficient vertically separated market structure. That is, both sets of firms will voluntarily adopt this structure.

Indeed, where this cost-based incentive to maintain separation (or partial separation) between upstream and downstream stages is present, competitive market forces will compel producers to embrace it. Suppose, for example, that the costs shown in Figure 1 apply. Then, as noted above, a vertically integrated producer would require a final product price of at least \$0.45 per unit, while a non-vertically-integrated set of firms (with resellers at the downstream stage) could charge as little as \$0.40. Effective competition, then, would force price to the lower level and, thereby, force firms to adopt the more efficient non-integrated structure.

Even in the absence of effective competition, however, upstream firms with market power may voluntarily choose to pursue the separate reseller strategy, particularly where resellers are able to efficiently serve downstream market niches that would otherwise go unserved. Suppose, for example, that the downstream stage consists of  $n$  separate geographic

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markets. Further suppose that  $m$  ( $< n$ ) of these markets exhibit markedly divergent scale economies of the sort shown in Figure 1, while the remaining  $n-m$  downstream markets exhibit unit cost curves that obtain their minimum values at  $Q_u^*$ . In that case, a cost-minimizing upstream firm -- even one with substantial market power -- would choose to employ resale to serve the  $m$  downstream markets that display comparatively lower economies of scale. Such resale allows the upstream producer to reach these additional markets (or to serve them at lower costs), thereby increasing its overall profits. Therefore, where this incentive to allow resale is present, it will tend to be adopted regardless of the state of competition at the upstream stage, unless an upstream firm with market power has other (non-efficiency) incentives to oppose it.

#### Role 2 – Resale Discourages Price Discrimination by Upstream Firms with Market Power.

Another theory pertaining to the decision of firms to adopt a vertically integrated structure was advanced by Martin Perry in 1978.<sup>25</sup> This theory is based upon the general incentive of a firm that possesses some (perhaps limited) degree of market power to engage in price discrimination when it sells its output to separate groups of customers that exhibit systematically different price elasticities of demand.<sup>26</sup> Specifically, a price-discriminating firm will charge relatively high prices to customers with relatively low price elasticities of demand and relatively low prices to customers with relatively high elasticities.<sup>27</sup> In so doing, the firm's total profits will be unambiguously increased relative to the profits that could be earned with non-discriminatory (i.e., purely cost-based) prices.<sup>28</sup>

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<sup>25</sup>Martin K. Perry, "Price Discrimination and Forward Integration," *Bell Journal of Economics*, Vol. 9 (1978), pp. 209-217.

<sup>26</sup>Price discrimination occurs when a seller charges prices that reflect different price-cost margins across different groups of customers. See David L. Kaserman and John W. Mayo, *Government and Business: The Economics of Antitrust and Regulation*, Dryden Press, Ft. Worth, TX, 1995, Chapter 8.

<sup>27</sup>Discriminatory (non-cost-based) prices are relatively common in regulated industries due to widespread cross-subsidization policies employed in these industries. In general, however, the pattern of prices observed here need not follow that which would be adopted by a profit-maximizing firm with market power. In regulated markets, for example, we may find relatively high prices being charged to customers with relatively high price elasticities of demand.

<sup>28</sup>There is also some literature suggesting that price discrimination may be used as a strategic weapon against actual and/or potential entrants to preserve a firm's extant monopoly power. Specifically, targeted (and non-cost-based) price cuts to the entrants' most likely customer groups may be employed to dampen the incentive to enter (or remain in) a market. See F.M. Scherer and David Ross *Industrial Market Structure and Economic Performance*, Third edition, Houghton Mifflin Company Boston, MA, 1990.

Due to the resulting differences between the prices charged to separate groups of customers at the downstream stage, price discrimination invariably creates potential opportunities for profitable arbitrage activities at that stage. Specifically, customers (either firms or consumers) facing relatively low prices will have an incentive to purchase the product and resell it to customers to whom the price-discriminating firm is attempting to charge the relatively high prices. Because the discriminatory price differences are not cost-based, such resale can be profitable even when the price the reseller charges the relatively high-price group is below the price the upstream firm is attempting to charge that group. Clearly, such resale activity undermines the discriminatory price structure. In fact, unfettered competitive resale will eventually drive prices to equality with costs, thereby completely frustrating the attempt of an upstream firm to engage in price discrimination. Consequently, an upstream firm charging discriminatory prices has a potentially strong profit incentive to prevent arbitrage (i.e., resale) at the downstream stage in order to preserve the non-cost-based price structure.

At least two strategies to achieve this result are potentially feasible.<sup>29</sup> The first, which was emphasized by Perry, involves forward vertical integration by the upstream firm into the relatively price elastic group of downstream buyers.<sup>30</sup> Where this strategy is feasible, the incentive of the downstream producer to resell the retail product at a price below that being charged by the upstream producer to the price inelastic group is eliminated through common ownership of the two firms. The vertical integration strategy, however, is available only in situations where the downstream purchasers are, themselves, firms. Because a firm cannot vertically integrate with final consumers, this strategy is feasible only where the firm attempting to implement price discrimination is selling its output to downstream producers rather than final consumers.

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<sup>29</sup>There are other strategies that may be used to prevent arbitrage. For example, restriction that limits buyers' purchases to amounts that may be consumed by those buyers effectively restricts for resale. In addition, resale may be preempted by implementing a price structure that results in a price-cost squeeze on resellers.

<sup>30</sup>Perry, op.cit.



The second strategy to prevent arbitrage is to impose a legal prohibition on resale by all purchasers of the product. Where such a prohibition is legally binding and enforceable, the relatively price-elastic customers paying the relatively low prices are prevented from reselling the product to the relatively price-inelastic customers through imposition of the resale restriction. As a result, the discriminatory price structure (and the heightened profits associated with it) can be sustained.

Thus, where resale is motivated by arbitrage opportunities that arise from price discrimination, we find that: (1) allowing such resale to occur results in a more uniform (i.e., less discriminatory) final product price structure; and (2) resale unambiguously lowers the upstream firm's profit, and, therefore, will be vigorously opposed by that firm. If permitted to do so, the price discriminating firm can be expected to adopt various strategies designed to inhibit resale of its product. Consequently, to the extent regulators want to maintain the ability of *market forces* to prevent price discrimination, it will be necessary to adopt policies to prevent upstream firms from restricting resale as long as the conditions that allow the price discrimination to occur remain in place.<sup>31</sup> And, because the principal necessary condition for price discrimination is the existence of some degree of monopoly power, this suggests that such a regulatory mandate will continue to be required until the upstream stage becomes fully competitive.<sup>32</sup>

Role 3 – Resale Facilitates Entry into the Upstream Stage by Ameliorating the Effects of Sunk Costs. In a recent paper, two of the authors of this report presented an argument regarding a potentially important role that resale may play in fostering entry into an upstream market that is characterized by substantial sunk costs.<sup>33</sup> It appears tautological that successful transformation

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<sup>31</sup> Our emphasis here on the term “market forces” is meant to distinguish the potential for the resale to serve as a market-based—as opposed to regulation-based -- mechanism to enhance competitive outcomes in a market.

<sup>32</sup> It is sometimes asserted that in order for such price discrimination to occur the vertically integrated firm must possess substantial monopoly power. Economic research has shown, however, that price discrimination is both common and sustainable in markets that are characterized by only modest amounts of market power. See Severin Borenstein “Price Discrimination in Free-Entry Markets,” *RAND Journal of Economics*, Vol. 16 (Autumn 1985), pp. 380-397.

<sup>33</sup> T. Randolph Beard, David L. Kaserman, and John W. Mayo, “The Role of Resale Entry in Promoting Local Exchange Competition,” *Telecommunications Policy*, Vol. 22 (1998), pp. 315-326.

of a market from monopoly to competition requires the entry of new firms.<sup>34</sup> Without entry, the interfirm rivalry that motivates firms to reduce prices, lower costs, and introduce new and innovative products does not arise. Rivalry does not exist without rivals, and rivals do not emerge without entry. Thus, where public policy seeks to promote competition, it must first seek to facilitate entry. And, as we shall see, policies designed to enable resale at the downstream stage also have the desirable effect of facilitating entry into the upstream stage.

Suppose we have an upstream market that enjoys significant monopoly power. That is, this market is both highly concentrated and subject to significant barriers to entry. Further, suppose that the principal source of these entry barriers is substantial sunk costs required for entry into the upstream stage of production. Finally, assume that independent entry at the downstream stage is feasible via resale of the upstream product and that such entry entails a much smaller commitment of sunk cost investments. In this setting, entry at the downstream stage--i.e., resale-- is likely to facilitate entry into the upstream stage as well.

The reason for this complementary relationship between resale and upstream stage entry is that sunk costs constitute a barrier to entry only to the extent that subsequent exit looms as a potential consequence of such entry. That is, the potential losses associated with sunk costs prevent new firms from entering a market only to the extent that these firms contemplate exit as a possible outcome. Where firms can obtain buyer "pre-commitments" to purchase their products or services through successful resale entry, the likelihood of exit is correspondingly reduced and, as a consequence, the entry-retarding effect of sunk costs at the upstream stage is attenuated.

In addition to this sunk cost effect, there are several other reasons to expect successful resale entry to contribute to a greater rate of entry at the upstream stage. First, firms marketing retail-stage services may invest in their own facilities in order to ensure the quality of network functions they desire. Both economic theory and the history of the telecommunications industry

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<sup>34</sup>Theoretically, an exception to this statement occurs where contestability (i.e., ultra-free entry) exists.

strongly suggest that resale entrants will be subjected to a plethora of non-price anticompetitive strategies by suppliers of essential network functions.<sup>35</sup>

Moreover, the variety and subtlety of these strategies makes it impossible for regulators to successfully police against them. As a result, even where upstream stage prices are set at or near competitive levels, an incentive to integrate backward may remain in order to circumvent anticompetitive non-price discriminatory practices.

Second, transaction costs associated with the purchase of upstream products from an outside supplier provide an additional non-price incentive to vertically integrate backward. Facing facilities-based carriers that oppose resale, resellers are often forced to expend considerable resources to negotiate and arbitrate resale agreements. Where a firm is eventually able to self-supply essential network facilities, it can largely avoid these costs.

Third, there is some potential that non-trivial vertical economies may exist between the network stage and retail stage of the wireless telephony business. If this is, in fact, the case, then an additional non-price incentive to integrate will exist. By combining the supply of network functions with the supply of retail-stage functions, overall cost savings may be realized.

Finally, there is a general expectation that firms located at adjacent vertically-related stages of production (either upstream or downstream) tend to be more likely potential entrants into either the next or prior stages.<sup>36</sup> Such firms are more likely than others to be aware of the opening of profitable entry opportunities due to their proximity to the relevant production activities. In addition, it can be shown that the incremental profits gained by successful entry of a firm located at a vertically related stage of production will generally exceed the incremental

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<sup>35</sup>See Randolph T. Beard, David L. Kaserman, and John W. Mayo, "Regulation, Vertical Integration, and Sabotage," Working Paper, April 1999; and Douglas S. Bernheim and Robert D. Willig, The Scope of Competition in Telecommunications, Working Paper, October 1996.

<sup>36</sup>See Roger D. Blair, Thomas E. Cooper, and David L. Kaserman, "A Note on Vertical Integration as Entry," *International Journal of Industrial Organization*, Vol. 3 (1985), pp. 219-229.

profits available to entrants from outside the industry.<sup>37</sup> Thus, *ceteris paribus*, resellers will tend to be more likely potential entrants than firms that have no association with the upstream market.

Due to the above considerations, it is clear that upstream producers interested in protecting their extant monopoly power against entry will oppose resale of their product at the downstream stage. By preventing such resale, these firms can reduce the likelihood (or threat) of entry into their market and, thereby, help to preserve whatever degree of monopoly power they may currently hold. Therefore, regulators attempting to facilitate upstream entry should proscribe such resale restrictions.

Finally, while the above considerations suggest that successful resale entry is capable of facilitating subsequent entry into the upstream stage of production, they do not suggest that all (or even most) resellers will necessarily decide to adopt such a vertically integrated structure. Indeed, the first theoretical explanation for separate (non-vertically integrated) resale -- divergent economies of scale -- indicates that, under certain conditions, backward integration may increase overall costs. Moreover, the theoretical conclusion that resale can serve as a vehicle for upstream entry also does not suggest that resellers that choose to continue to confine their operations to the downstream stage -- i.e., the do not opt to vertically integrate -- fail to exert the other beneficial competitive impacts described earlier. In other words, it is not necessary for resellers to integrate backward in order to enhance competition in the affected market or markets. Non-integrated resale can have substantial pro-competitive effects.

Theoretical Role of Resale – A Summary. The above three subsections establish the following results. First, resale has unambiguously pro-competitive effects on market outcomes, serving to lower cost, restrict price discrimination, and/or promote entry. As a result, a policy that prevents upstream firms with market power from restricting resale of their products is also pro-competitive, anti-discriminatory, and generally serves to promote consumer interests.

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<sup>37</sup>*Ibid.*

Second, due to the multiple effects that resale is capable of exerting, upstream firms are likely to differ markedly in their attitudes toward resellers, depending upon their individual market positions. Specifically, upstream producers attempting to sustain discriminatory price structures and/or retard entry are likely to oppose resale, while upstream producers attempting to lower costs and reach otherwise unserved or underserved segments of the downstream market are likely to view resale in a more favorable light. Thus, we are unlikely to observe a ubiquitous attitude toward resale among these producers.

Third, and most important, upstream producers' attitudes toward prohibitions against resale restrictions are likely to be closely associated with the consequences that resale is likely to have on the competitiveness of their market activities. Specifically, it is in situations where resale counteracts discriminatory pricing and/or promotes entry that upstream producers have the greatest economic incentive to oppose it. As a result, opposition to resale is virtually *prima facie* evidence that: (a) the opposing party intends to restrict resale; and (b) such restriction of resale will have adverse consequences for (at least some) consumers. Thus, while it may resemble a Catch-22, sound theoretical considerations suggest that a prohibition on resale restrictions is most needed in those very market settings where it is most strenuously opposed.

## 4. The Economic Impact of Resale in Telephony

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In Section 2, we identified the important role that wireless telecommunications can play and is playing in advancing the goals of the Communications Act of 1934 “to make available, so far as possible, to all people of the United States a rapid, efficient Nationwide,...wire and radio communications service with adequate facilities at reasonable charges....” Based on that discussion, it is clear that the development of a healthy, vibrant and competitive wireless industry is a vital building block in the construction of a state-of-the-art twenty-first century telecommunications network in the United States. Moreover, the economics of resale, presented in Section 3, point very clearly toward the role that resale is likely to play in promoting both economic efficiency and competition in vertically related markets. In this section, we turn to a more specific investigation of the role of resale in the provision of telecommunications services.

### 4.1 The Evolution of Resale Policy in Telecommunications

The first recognition of the potentially pro-competitive role of resale in the provision of telecommunications service was in 1976 when the FCC prohibited tariffs that precluded the resale of private line services.<sup>38</sup> Consistent with the observations in Section 3 above, the FCC noted that resale is “an effective deterrent to price discrimination among cross-elastic services.”<sup>39</sup> Using similar logic, the FCC ruled in 1980 that restrictions on resale be prohibited from WATS and MTS tariffs.<sup>40</sup> As stated at the time “restriction of cellular resale is contrary to the public interest.”<sup>41</sup> This public policy lineage of support for resale opportunities remained unchanged

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<sup>38</sup> 60 FCC 2d 261 (1976), recon granted in part, 62 FCC 2d 588 (1977), aff'd sub nom. AT&T v. FCC, 572 F. 2d 17 (2d Cir.), cert. Denied, 439 U.S. 875 (1978).

<sup>39</sup> 86 FCC 2d 569, CC Docket No. 79-318, Adopted April 9, 1981, para. 104.

<sup>40</sup> “Regulatory Policies Concerning Resale and Shared Use of Common Carrier Domestic Public Switched Network Services,” CC Docket No. 80-44, 83 FCC 2d 167, 1980.

<sup>41</sup> 86 FCC 2d 569, CC Docket No. 79-318, Adopted April 9, 1981, para. 105.

for many years. Indeed, as recently as 1996 policymakers reaffirmed their support for the pro-competitive influence of resale in the Telecommunications Act of 1996 which requires local exchange companies to make their retail services available for resale (at rates that reflect the costs that will be avoided by providing services at wholesale rather than retail).

Recently, however, this long-standing policy of protecting the resale option has come under attack from the Personal Communications Industry Association (PCIA) – an association consisting, in part, of the facilities-based providers of PCS – and the result has been a modification of the traditional approach to resale by the FCC. Specifically, while extending the ban on resale restrictions from cellular to all Commercial Mobile Radio Services,<sup>42</sup> the FCC has modified the policy position that “Each carrier must permit unrestricted resale of its service.”<sup>43</sup> In July 1996, the FCC chose to declare its intention to “sunset” the rules that prohibit facilities-based wireless carriers from placing restrictions on the resale of their services. Specifically, the Commission reasoned that within five years of the initiation of the PCS build-out “market forces will eliminate the need for explicit resale regulation.”

The recent debate on the merits of eliminating the long-standing preference to enable resale has been characterized by a variety of claims that either the “alleged benefits” of resale are nonexistent or that in the absence of the regulatory guarantee of resale the incumbent carriers will engage in discriminatory practices. These claims have, however, to this point been largely absent of serious empirical scrutiny. In the remainder of this section, we attempt to shed additional light on these claims both by drawing upon historical evidence regarding the competitive role of resale in long distance and by detailing the current role of resellers in wireless markets. This investigation reveals that the regulatorily-assured wireless resale option has permitted the development of an active and distinctly pro-competitive resale industry that has brought considerable benefits to telecommunications consumers. Moreover, based on

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<sup>42</sup> Under the FCC rules, an exception occurs for a facilities-based carrier that is permitted to restrict resale to a fully built-out facilities based carrier.

<sup>43</sup> 47 CFR Ch. 1 (10-1-97 Edition) § 20.13 (b).

experiences in long-distance, the importance of wireless resale is likely to persist long after wireless markets have attained mature effective competition.

#### **4.2 Lessons from Resale in Long-Distance**

The Modification of Final Judgement (MFJ) that ordered AT&T's divestiture of its RBOCs radically and irrevocably altered the structure of the telecommunications industry in the United States. In retrospect, the impacts of the MFJ on the interexchange market have been almost entirely positive.<sup>44</sup> At the time of the divestiture, however, there was considerable uncertainty regarding the emergence or sustainability of competition in long-distance markets. Some analysts foresaw an acceleration in market entry and the emergence of effective competition. Other experts were far less optimistic.<sup>45</sup>

Fifteen years after the implementation of the MFJ, it is clear that these fears were unfounded. Moreover, the available evidence suggests that the emergence of effective competition in the interexchange market and the continued health of that competition are, in part, traceable to opportunities for entry, growth and innovation that have sprung from resale competitors.

At the time of the divestiture two very small companies, MCI and Sprint, operated at the very fringes of the long-distance marketplace. AT&T owned virtually all of the physical facilities with which to supply long distance service in the United States.<sup>46</sup> In the absence of a

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<sup>44</sup> See, e.g., Robert Crandall and Jerry Ellig, *Economic Deregulation and Customer Choice: Lessons for the Electric Utility Industry*, Brookings Institute, 1997.

<sup>45</sup> For a full range of stories and opinions regarding the AT&T antitrust settlement, see *The New York Times'* Business Section, January 9, 1982. Also see Paul W. MacAvoy and Kenneth Robinson, "Losing by Judicial Policy Making: The First Year of the AT&T Divestiture," *Yale Journal on Regulation*, Vol 2., No. 2, 1985, pp. 225-262; Alfred W. Duerig, "The Demise of the Telephone Industry," *Public Utilities Fortnightly*, January 23, 1986, pp.30-38; and Tomothy M. Pryor and Carl G.K. Weaver "The Future of Competition in the Telecommunications Industry," *Public Utilities Fortnightly*, March 5, 1987, pp.28-32.

<sup>46</sup> The exception to this statement is that local exchange companies, including the Bell Operating Companies, controlled, and still control, the local exchange access facilities that are essential to be able to supply service over "the last mile" of a telephone call.



large nationwide network of physical facilities with which to supply long-distance service, MCI and Sprint relied heavily on reselling the services of AT&T. By doing so, these resellers were able to serve customer groups that were not receiving the most efficient or best service or pricing available. Moreover, the platform of resale allowed MCI and Sprint, along with other newly entering resellers, to provide a number of new and innovative services and to serve small customer groups in a way that – for whatever reason – were not well served by AT&T. The results of this strategy were dramatic. AT&T began to lose market share immediately to these firms and, it has never regained that share loss.<sup>47</sup> The market, once characterized by a single dominant firm was transformed into an effectively competitive market over the subsequent years.<sup>48</sup>

The dramatic transformation of the industry stands as a striking success in the public policy quest to ensure the efficient and competitive supply of telecommunications services to customers. Three important conclusions with regard to resale emerge upon a close examination of this transformation. First, the resale platform created an important springboard for many positive developments in the delivery of efficient, competitively supplied long-distance services. Second, while the resale phenomenon is sometimes thought to be ephemeral, we find that the positive competitive role of resale continues today, some fifteen years after the divestiture. And, finally, the benefits that policy protection of resale competition has brought to the long-distance marketplace have not been accompanied by the “costs” that have been projected to the resale function by facilities-based opponents of resale in the wireless arena.

Early data quantifying the role of resellers in the long-distance market is unavailable. However, toll reseller revenues for 1992 through 1997 are reported in Table 4.1. The relative growth in reseller revenues underscores the importance of these providers in the evolution of the

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<sup>47</sup> In the third quarter of 1984, AT&T held an 84.2% share of total long-distance access minutes. In the third quarter of 1998, the most recent quarter for which data is available, AT&T's share had fallen to 50.7%.

<sup>48</sup> On the competitive nature of the long-distance marketplace today, see Simran Kahai, David L. Kaserman and John W. Mayo “Is the ‘Dominant Firm’ Dominant? An Empirical Analysis of AT&T's Market Power,” *Journal of Law and Economics*, Vol. 39 (October 1996), pp. 499-517; and David L. Kaserman and John W. Mayo “Long-Distance Telecommunications : Expectations and Realizations in the Post-Divestiture Period,” in *Incentive Regulation for Public Utilities*, Michael A. Crew, Ed., Kluwer Academic Publishers, 1994.

interexchange market. While IXC revenues increased by just under 40 percent during the 1992-1997 period, reseller revenues increased by nearly 520 percent so that, by the end of 1997, reseller revenues exceeded 9 percent of industry totals.

While the positive role that resale can play in emerging markets is readily seen, the resale of telecommunications services is often erroneously depicted as an ephemeral phenomenon. Resale is a mode of providing services that enables high speed, efficient and low sunk-cost entry. It maximizes the opportunity for entrepreneurs to test whether their ideas for providing telecommunications service to retail customers will pass "the market test." It also allows for low sunk-cost exit from the market if the entrepreneur has miscalculated the merits of his or her ideas. While the important role of entry and exit in the structure of competitive markets is well

**Table 4.1**

TOLL RESELLERS AND RESELLER REVENUES

<i>Year</i>	<i>Reseller Revenues (in millions)</i>	<i>IXC Revenues (in millions)</i>
1992	\$1,293	57,314
1993	1,869	61,118
1994	2,840	66,381
1995	4,220	70,938
1996	6,564	79,057
1997	8,010	79,080

Source: Jim Lande and Katie Rangos, *Telecommunications Industry Review: 1997*, Federal Communications Commission, Common Carrier Bureau, Industry Analysis Division, Washington, D.C., October, 1998.

Note: Firms self-reported category of service based on their primary activity. Sellers were instructed to report as an IXC if they provided long distance telecommunications services substantially through switches or circuits that they own or lease. Toll Resellers are firms that provide long-distance telecommunications services primarily by reselling the long distance telecommunications services of others.

known and appreciated, a more subtle but equally important point regarding resale emerges from our examination of the resale experience in long-distance markets. Specifically, when provided the opportunity to supply customers through nonrestrictive public policies toward resale, resellers have become an integral part of the *ongoing* character of a healthy competitive market. This point is easily seen by an examination of recent activity in the long-distance marketplace. Specifically, some fifteen years after the much-anticipated collapse of the industry that some skeptics foresaw, resellers comprise a major and ongoing element of the entry, exit, and innovations processes of the long-distance marketplace.

In 1996 and 1997 corporate information describing nearly every provider of telecommunications services – roughly 3,500 firms in total – were compiled by the FCC in its *Interstate Telecommunications Locator Reports*.<sup>49</sup> These publicly available data provide remarkable insights into entry and exit in the interexchange markets and, in particular, into the role of resellers in the maintenance of long-distance competition. For example, despite the critics' anticipated collapse of the resale industry in the long-distance marketplace, some 350 resellers were actively reselling toll services in 1997. Entry and exit among resellers is quite high as new firms enter with the goal of supplying services that will be successful. In 1997, 114 new resellers emerged that were not present in 1996. Moreover, there are 123 toll resellers that appear in the 1996 listing that are not present in the 1997 listing.<sup>50</sup> Some firms exited the market entirely, others were combined through merger, and some 1996 toll resellers moved into other lines of business. Eleven toll providers that were categorized as resellers in 1996 transitioned into the category of facilities-based interexchange carriers in 1997. Thus, as described in Section 3 above, resale is indeed an important stepping-stone to facilities-based entry. With some 50 new interexchange companies in 1997, the data indicate that 22 percent began service as toll resellers.

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<sup>49</sup> Data were gathered from the Telecommunication Relay Service worksheets completed annually by every provider of interstate services.

<sup>50</sup> The number of exiting firms is inflated by the fact that 48 individual "Dial and Save" operations were present in the 1996 listing, but absent in the 1997 tally.

In sum, the long-distance market provides a very useful case study with direct implications for public policy toward wireless resale. In the wireline long-distance market, the FCC's open resale policy permitted MCI, Sprint and other early resellers the *opportunity* to determine whether AT&T's prevailing tariffs created a window to enter the market at the retail stage, provide resold services, satisfy customers and make a profit. As history now has shown, the open resale policy has proven to be a valuable policy that has enabled resellers to drive innovations, introduce new services, reduce costs, and retard price discrimination. Moreover, the open resale policy continues today in the long-distance market with essentially no adverse market consequences. The implications for wireless resale would appear straightforward. Nonetheless, we next turn to a specific analysis of resale in wireless telephone markets in the United States.

#### **4.3 Wireless Resale and the Current Policy Debate**

As the demand for mobile telephony has grown, opportunities for resale of wireless services have emerged as well. Indeed, by 1997, wireless resale revenues had reached \$1.1 billion, with roughly 6% of all wireless customers purchasing services from resellers rather than facilities-based carriers.<sup>51</sup> Moreover, while resellers are often seen as transient participants in telecommunications markets, the average wireless reseller has been in business for nearly seven years and has over 100 employees.<sup>52</sup>

Section 3 suggests that, in those instances in which resellers can reach market segments that are unserved or underserved by facilities-based carriers, these carriers may welcome the resellers. This same theoretical discussion, however, indicates that profit-maximizing facilities-based providers will *resist* resellers when resale serves to heighten the level of competition. As Section 4.3 describes, wireless resale currently does both – reaching under-served market niches and heightening the level of competition in some markets. Thus, it is not particularly surprising that a few facilities-based wireless providers welcome resale in some settings, while most other

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<sup>51</sup> See "Wireless Resellers Headed for Brighter Future, Says Yankee Group," *PCS Week*, April 1, 1998.

<sup>52</sup> See "TRA 1998 Mid-Year Survey of Wireless Resellers."

facilities-based carriers engage in various attempts to circumvent the intent of existing protections.

The extent to which currently observed levels of wireless resale would have been observed absent FCC protections is a heavily debated topic. Nonetheless, the FCC decision to abandon these protections in 2002 implies three distinct judgments that are highly questionable based on both economic theory and currently observed conditions. First, the FCC's decision to vacate its protection of the right to resell implies that the contributions to consumer welfare currently attributable to wireless resale will be unnecessary or redundant in the near future. Second, there is the clear implication that wireless resale offers no benefits that cannot be replicated by competitive facilities-based providers. Third, the FCC decision suggests protecting resale imposes some material costs on facilities-based sellers. Neither empirical, nor anecdotal information specific to the wireless marketplace supports these three implicit judgments. Quite to the contrary, there is evidence that wireless resellers provide benefits that cannot or would not be provided in their absence and there is virtually no evidence that protecting opportunities for wireless resale imposes costs on facilities-based carriers. An accounting of the benefits attributable to wireless resale is provided in the remainder of this section, while claimed costs are discussed within the context of our policy conclusions in Section 5.

#### **4.4 The Contributions of Wireless Resale**

Section 3 clearly describes the ways that resellers provide benefits that would be unobtainable in their absence. These benefits generally fall into three categories – (1) service innovations, (2) competitive discipline, and (3) competitive entry.

Wireless Resale Contributions – Service Innovations. As described in Section 3, resale affords the opportunity for firms to enter the market and specialize in providing services that vertically integrated firms cannot offer. In the case of wireless resale, numerous resellers have successfully entered various markets by providing specific innovative services that consumers find attractive. The source of this success stems from the ability of resale competitors to provide services in new

and creative ways. For example, one reseller of wireless services, America One, is well known for its sophisticated database management that allows it to offer services to wireless customers that would, otherwise, be missed by traditional marketing efforts.<sup>53</sup> Other wireless resellers have introduced and marketed pre-paid wireless services.<sup>54</sup> The introduction of pre-paid wireless service has expanded the base of wireless customers to market niches that have traditionally been unserved or underserved by facilities-based carriers.<sup>55</sup> Still other wireless resale carriers have introduced features that allow customers to more accurately track minutes of use and wireless costs.<sup>56</sup>

Also, wireless resellers, to the extent they are able, often resell the services of multiple facilities-based carriers within a single footprint.<sup>57</sup> This allows the reseller to offer potential customers a menu of service offerings that may be broader than the customer could attain from any single facilities-based provider. This same practice may also increase the speed with which consumers are introduced to new services. Resellers can acquaint their customers with newly available offerings provided by *any* of the facilities-based providers from whom the reseller purchases capacity without the fear of lost business. Facilities-based providers cannot provide the same opportunity.

Finally, there is a potential, but as yet undemonstrated reseller advantage in the bundling of telecommunications services. Bundled services or one-stop-shopping for telephony customers has long been predicted to be the ultimate marketing tool. As bundling has become increasingly possible, the predicted response of consumers has become somewhat more suspect. If, however,

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<sup>53</sup> It is sometimes tempting to characterize marketing efficiencies as less important than other efficiencies. From an economic vantage, however, this characterization is wholly inappropriate.

<sup>54</sup> See "Cellular firm Marketing Prepaid Phone Service," *The Business Journal - Serving Phoenix & the Valley of the Sun*, February 17, 1995, p. 10.

<sup>55</sup> See Malcolm E. Spicer, John Sullivan and Ellen B. Mullally, "Catching on to the Prepaid Rising Star," *Mobile Phone News*, June 15, 1998, pp. 1-2.

<sup>56</sup> See "Nokia Signs Licensing Agreement with Topp Telecom Inc.; Topp Telecom's Prepaid Software to be Incorporated into Nokia 918 Phone," *Business Wire*, January 8, 1999, p. 1071.

<sup>57</sup> Some facilities-based providers resist this practice by insisting that resellers enter into "exclusive dealing" agreements. Thus, such agreements preclude benefits that would otherwise be attained by wireless customers.

bundling does emerge as an important method of service provision, resellers should have a distinct advantage. Unlike facilities-based carriers, resellers routinely purchase various services from a wide number of producers. Resellers already possess the managerial skills and organization frameworks necessary to create bundled offerings from the services of disparate providers. Facilities-based carriers – at least those who cannot self-supply all necessary services – will find it necessary to develop this additional expertise.

Wireless Resale Contributions – Competitive Discipline. Section 3 also makes it clear that a fundamental and valuable role of resale is to expand output and lower prices in market segments that are not receiving the full benefits of competition. That is, resale serves as a critical market-correcting feature whenever firms attempt to deny consumer benefits by charging prices that systematically deviate from costs. This beneficial role is, at this point, well established and pervasive across a variety of industries including long-distance telecommunications and some transportation industries.<sup>58</sup> This valuable role of resale is no less important in the wireless telephony markets.

For example, facilities-based carriers often require a monthly contract fee and a contractual time commitment for the purchase of wireless services. While these practices are also typical in resale, some resellers have been able to open the market to consumers whose demand has been dampened by such monthly fees and contract commitments. Topp Telecom, for example, offers service based on a licensing agreement with Nokia that enables customers to use wireless services with no monthly service fees and no long term contracts. Indeed, as noted recently by *Business Wire*, this service “is the only prepaid wireless service that requires no contract, no credit, no security deposit and has no monthly bills or age requirements, making service available to everyone.”<sup>59</sup>

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<sup>58</sup> For an enlightening description of the role that resale plays in extending overnight airfreight services to previously unserved customers see “Discounts for Little Guys: Resellers Bring Small Shippers to the Big Carriers and Everybody Ends Up Happy,” *Traffic World*, 3/26/99.

<sup>59</sup> *Ibid.*

Perhaps more importantly, as Section 3 demonstrates, resale competition constrains or eliminates discriminatory pricing behavior and facilitates the capture of divergent scale economies. Both outcomes imply lower prices for consumers. This is *precisely* what is observed in markets where wireless resellers are present. Resellers seek out buying opportunities at the wholesale level and create buying opportunities for retail customers. The consequence has been that, despite the presence of an often less-than-inviting wholesale purchasing environment, wireless resellers have created unquestionable consumer benefits. For example, wireless resellers' retail rates are often 5 to 10 percent lower than those of the facilities-based carriers from whom they purchase wholesale services.<sup>60</sup> Clearly, these lower rates reflect either a cost advantage and/or prices that are more competitive.

This ability of resellers to discipline wireless markets and provide competitive relief to low-volume customers is especially important. Customers with more modest monthly usage typically pay rates that are *three to four times greater* than high-volume users.<sup>61</sup> Moreover, rates for certain small volume plans have increased in recent times.<sup>62</sup> Thus, while large-volume customers, purchasing 500-600 minutes of use (MOU) each month, can *sometimes* secure rates that approach \$0.10 per minute, smaller customers often pay in excess of \$0.40 per MOU in the absence of resale's competitive influence.

Wireless Resale Contributions – Competitive Entry. Facilities-based entry into wireless markets differs considerably from similar entry into the long-distance wireline market. Specifically, physical long-distance networks can be created in much smaller increments than can wireless networks. Nonetheless, resale of wireless service plays an important role in the process of facilities-based competitive entry by accelerating the deployment new networks. For example, Ameritech is reported to have offered resold services (of GTE) to customers in its licensed regions prior to the deployment of its networks. Because resale allows these firms to establish a

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<sup>60</sup> The differential between facilities-based and reseller rates is self-reported by the Telecommunications Resellers Association and confirmed by an examination of specific rate plans in several metropolitan markets.

<sup>61</sup> Even large-volume customers must consume their allotted capacity in order to achieve these low MOU rates. Any under-consumption measurably increases the effective rate.

<sup>62</sup> Recent editions of *Wireless Week* report increases even in the most "competitive" of markets (e.g., Los Angeles and New York) for small usage plans. See articles in *Wireless Week* for February 15, 1999 and February 22, 1999.



customer base and some amount of brand loyalty, this avenue of entry reduces the risks associated with entry and thereby contributes to the willingness of resellers to accelerate capital (and potentially sunk) investments either at the retail stage or in upstream markets. Even where resellers do not eventually plan to enter the wireless market as a facilities-based provider, wireless resale has proven to be a valuable vehicle for carriers to probe the breadth of consumers' demand for telephone services. For example, operating as a reseller, MCI was able to offer a bundled wireless and wireline service without the costly investments that would have been necessary had resale not been available.

## 5. Policy Conclusions

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Decisions regarding regulatory rules must necessarily be set in a context of benefits and costs that are likely to result from a given policy action. In the case at hand, our analysis reveals that the opportunity for resale afforded under the FCC's present "open" resale policy confers considerable economic benefits. Even if our assessment of the benefits of wireless resale is overstated, however, elimination of the open resale policy will not necessarily be in the public interest unless the perpetuation of these protections imposes otherwise avoidable costs on facilities-based providers that are, in turn, passed through to wireless customers. For a variety of reasons, this is not the case.

To understand this conclusion, it is necessary to consider the protections that current FCC rulings afford wireless resellers. Current protections *do not require* facilities-based carriers to provide resellers with wholesale, cost-based prices. The protections *do not require* facilities-based carriers to develop special terms, provisions, or operations for dealing with resellers; and the protections, as they exist today, *do not force* facilities-based carriers to create extra capacity in order to accommodate the demands of wireless resellers. With regard to this last point, the FCC specifically states:

...the resale rule does not require providers to respond to any and all for bulk capacity per se. The rule requires only that a bulk discount (or any offering) made available to one customer must be made available to similarly situated customers on a non-discriminatory basis.<sup>63</sup>

Current protections simply mandate that no facilities-based carrier may offer like communications services to resellers at less favorable prices, terms, or conditions than are available to other end-users.

Facilities-based carriers have argued that unanticipated exit by a reseller could leave them excess capacity or stranded investment costs. But prices, terms, and conditions of facilities-

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<sup>63</sup> See FCC 96-263, Section III, paragraph 20.

based providers are established for profit-maximizing purposes, presumably in full recognition that any particular customer may seek to discontinue service. Thus, nothing about this standard feature of markets creates a rationale for selectively denying one particular type of customer (viz., resellers) the option of purchasing under the freely chosen set of terms and conditions established by the facilities-based providers.<sup>64</sup>

Finally, facilities-based carriers have claimed that resale requirements impose otherwise avoidable administrative costs, but it is difficult to see how the addition of an additional customer under the same term and conditions as other customers would impose any significant administrative costs. The FCC's own reflection on this matter is consistent when it states that, "...there has been no effort to show the extent of any administrative costs of compliance."<sup>65</sup>

Despite the lack of evidence pertaining to the alleged costs of an open resale policy, some have alleged that the imposition of a policy that prohibits resale restrictions smacks of heavy-handed regulation. As seen quite clearly in Section 3 above, however, resale arises to enhance marketplace efficiencies and competition. Therefore, successful resale is, in many ways, a direct substitute for regulation. Consequently, policies designed to permit resale are perfectly consistent with the "pro-competitive, de-regulatory national policy framework" envisioned in the Telecommunications Act of 1996. Moreover, as seen in our discussion of the history of resale in the provision of wireline long-distance services, no onerous regulatory burden has arisen in the resale process in other telecommunications markets. Consequently, there is little reason to find the claims of large costs or over-regulation in the wireless arena credible. In fact, it would seem that the only significant costs that wireless resale places on facilities-based providers are the cost

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<sup>64</sup> Moreover, as the FCC has already noted, "It is reasonable to assume that CMRS providers will price their service to earn a return on their investment and will incorporate appropriate language into their agreements to guard against an unexpected discontinuation of services. Such contracting practices should protect carriers against their competitors' making short-term demands that would leave them with stranded capacity whether deliberate or otherwise." See FCC 96-263, Section III, paragraph 28. (This particular language was directed at facilities-based carriers' claims that opening resale to new PCS licensees as a transitional device might allow these licensees to use resale agreements in strategies designed to injure incumbents. The same logic, however, would seem to apply to all resale.)

<sup>65</sup> FCC 98-134, adopted 6/23/98, Section IV, paragraph 29., p. 15.

that these providers incur in attempts to circumvent or overturn the opportunities for resale under the open resale policy.

Finally, a general premise underlying an open resale policy stems from the idea that without such a policy resellers may be foreclosed from the market by vertically integrated producers. Where there is a single vertically integrated producer operating in a regulatory environment, the incentives for such foreclosure are clear both as a matter of economic logic and historical record. In such situations the necessity for an open resale policy as a pro-competitive vehicle is essentially unassailable. It has been argued, however, that as the number of competitors grows beyond one (or in the case of wireless telephony, two) the need for an open resale policy evaporates. Specifically, it is argued that as the number of facilities-based carriers reaches some critical number (e.g., four) the prospect for foreclosure of the wholesale market to resellers no longer will exist. The general notion underlying this argument is that in the presence of multiple vendors any attempt by one vertically integrated facilities-based provider to deny service to or exploit a reseller would simply be met by the reseller switching to another, more cooperative, facilities-based carrier.

Certainly, in a world of perfectly competitive provision of wholesale services with no costs imposed on resellers for switching their underlying carrier, the likelihood of foreclosure of resellers diminishes. The prospect that wireless telephone markets will approach that status within the relevant policy horizon, however, is highly questionable. While the number of facilities-based competitors has grown, the number of relevant facilities-based carriers is capped by the number of licenses for cellular and PCS markets. While the FCC's policies will lead to more competitors, as a matter of economic theory it is nonetheless quite likely that facilities-based carriers will still find it in their own interests to foreclose opportunities for resellers to participate in retail market. Indeed, the prior literature has demonstrated incentives for vertical foreclosure even in the presence of multiple upstream vendors.<sup>66</sup> Thus, the expected emergence

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<sup>66</sup> See, e.g. Michael A. Salinger "Vertical Mergers and Market Foreclosure," *Quarterly Journal of Economics*, May 1988, pp. 345-356. Specifically, Salinger identifies conditions in which multiple (Cournot oligopolistic) vertically integrated vendors will find it in their self interest to refrain from participating in the market for the "intermediate" good. See also, Janusz A. Ordover, Garth Saloner, and Steven C. Salop "Equilibrium Vertical Foreclosure," *American Economic Review*, March 1990, pp. 127-142.

of more facilities-based carriers in the future provides little assurance that the benefits of wireless resale will not be foreclosed in the absence of an open resale policy. Moreover, the general notion that wireless resellers can costlessly switch among facilities-based carriers to avoid exploitation is inaccurate. Specifically, the combination of different facilities-based technologies (e.g., cellular analog, PCS digital) and the lack of wireless number portability create significant switching costs that would be imposed on any reseller that sought to change its wholesale (facilities-based) vendor.

In the final analysis, several factors come together to suggest that the long-standing policy of assuring the opportunity for resale is economically sound and creates benefits that significantly outweigh any realistic assessment of the costs associated with this policy. First, as we saw in Section 2, wireless telephony is not only important in its own right as a new platform for satisfying consumer demands, but several external benefits also may arise to the extent that wireless telephony is allowed to achieve its full competitive potential. Among these is the prospect for enhanced productivity across essentially all commerce that may rely upon mobile telephony. Additionally, the growth of the wireless industry gives rise to the hope that, in time, wireless telephony will provide a competitive check on the monopoly power of local exchange companies.

Section 3 indicates that there are numerous economic settings in which resellers can thrive, providing service to otherwise unserved market segments, enhancing the variety of service offerings, and generally elevating the level of competition. In addition, Section 3 demonstrates that resale is likely to be opposed by facilities-based carriers primarily in those situations in which the resale activity serves to thwart potential anticompetitive activities of the vertically integrated carrier (e.g., price discrimination and preemption of entry). Thus, the likelihood of resale opposition is greatest in precisely those situations in which its pro-competitive influences are most needed.

Moreover, our examination in Section 4 of resale in telecommunications markets in general and in wireless markets specifically confirms the presence of considerable economic benefits of resale. Often, debates regarding telecommunications policy are couched in terms of

bold conjectures about the future. In this case, however, our examination of the specific practice of resale in telecommunications points toward readily apparent benefits. There is perhaps no better example of this outcome than the interexchange telecommunications market. In the fifteen years since the Bell System breakup, resale has proven to be an immensely popular and powerful means of market entry. Moreover, even today, when competition in the long-distance marketplace has been judged as mature, entry through resale continues to be an important competitive force.<sup>67</sup> In a similar fashion, resale in the wireless industry has created numerous economic benefits by affording new firms the opportunity for low sunk cost entry and the freedom to target underserved market niches. The result has been enhanced innovation in wireless telephony and lower retail rates than would exist without resale. In light of these benefits, and in the absence of any credible claims regarding the costs of an open resale policy, we conclude that the traditional support for an open resale policy should be maintained.

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<sup>67</sup> See Federal Communications Commission Order 95-427, October 23, 1995.